Feeding ecology of round goby (*Neogobius melanostomus*) in the coastal waters of SE Baltic Sea

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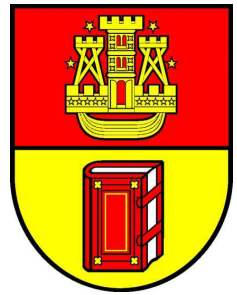
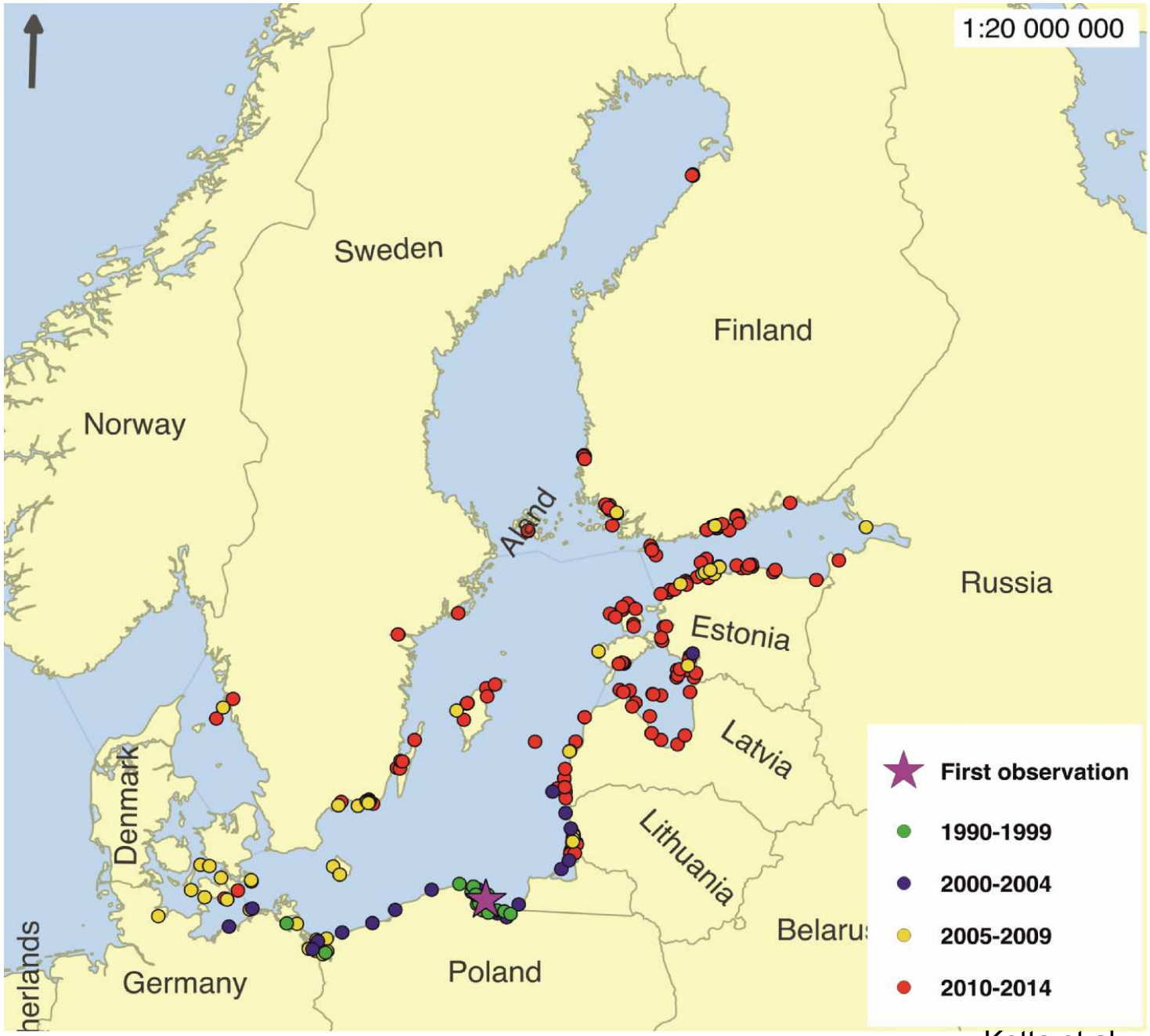


Introduction

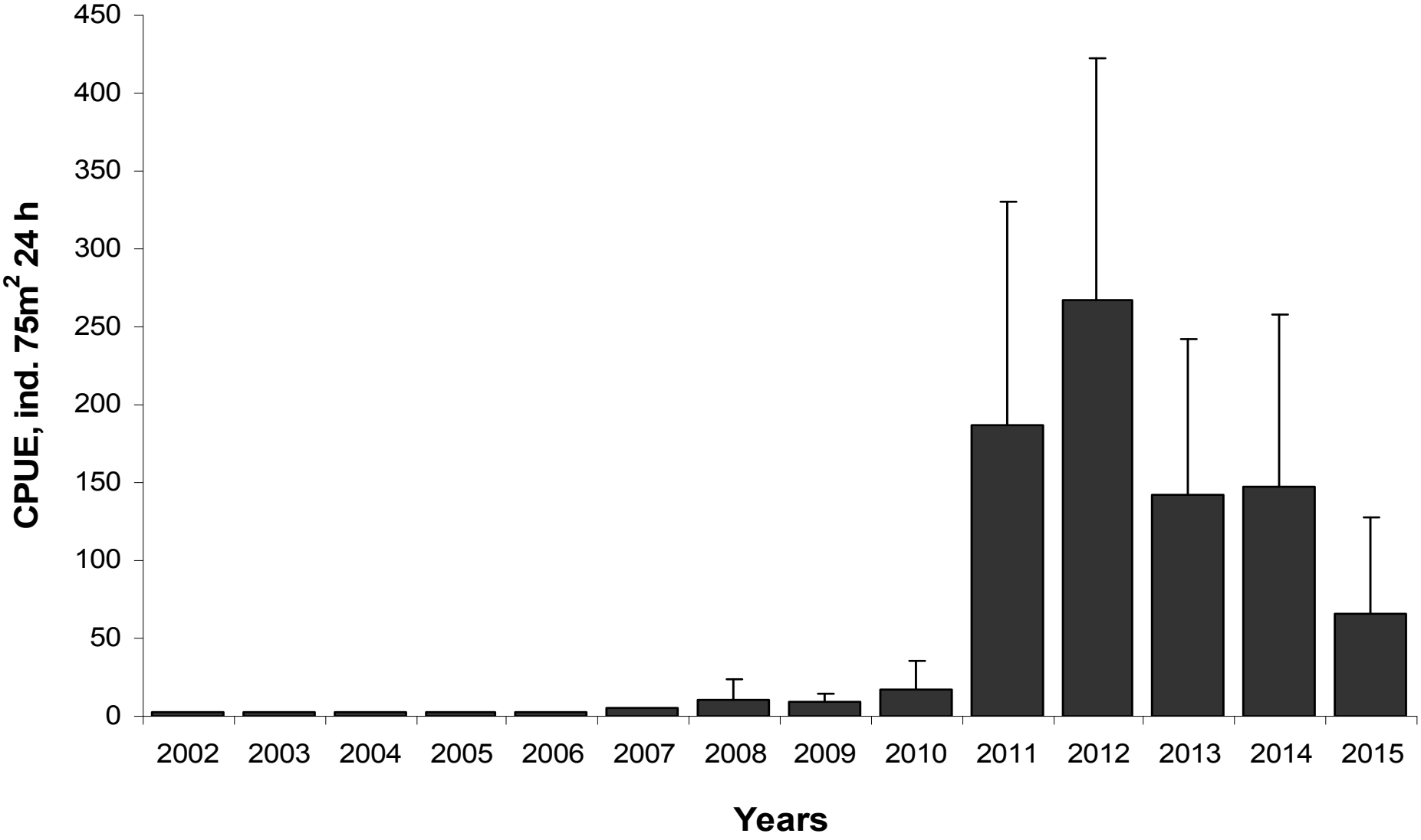
Round goby (*Neogobius melanostomus*)

Dispersion pattern of round goby in the Baltic Sea



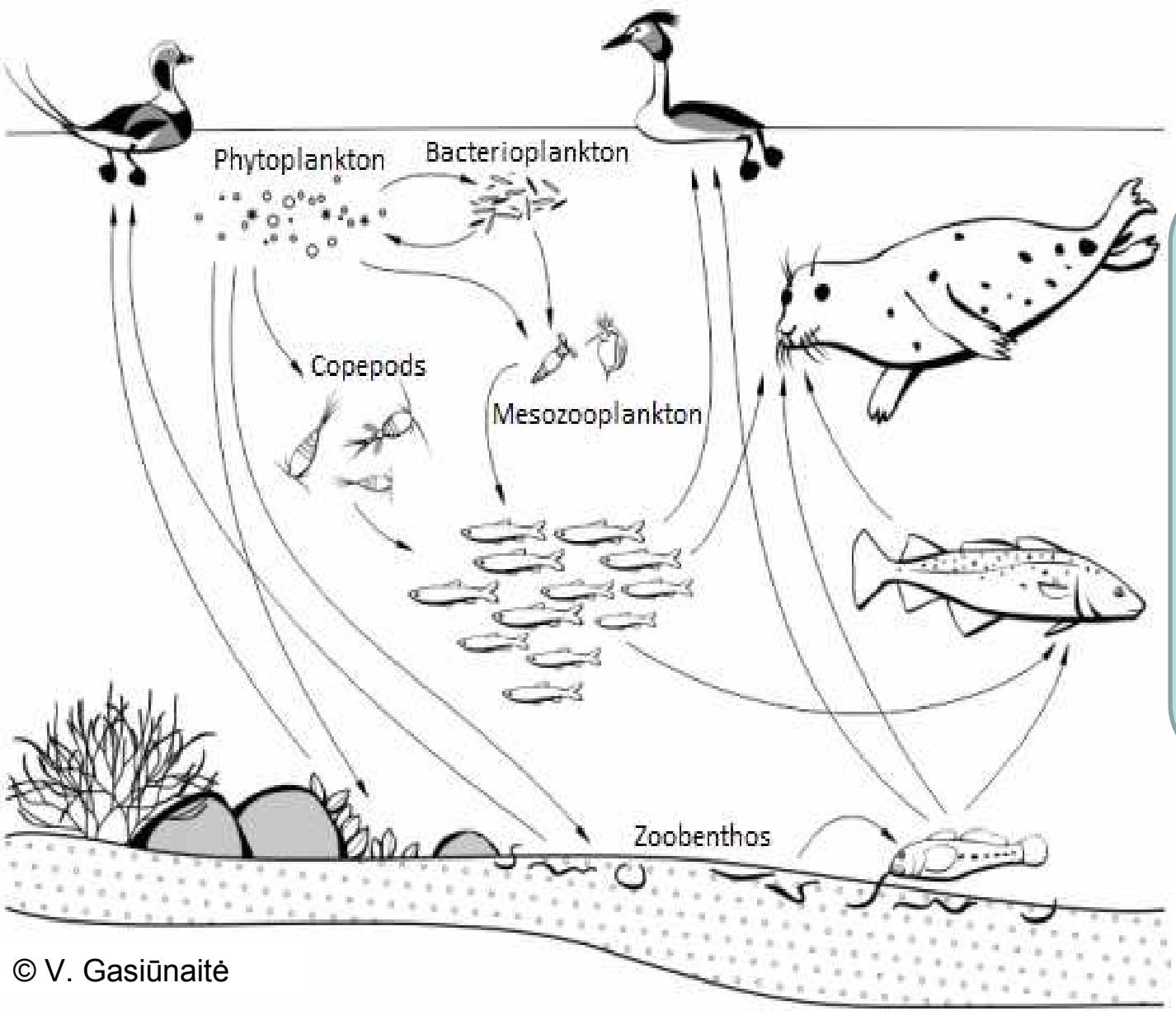
Kotta et al., under review

Abundance dynamics of round goby in the Lithuanian coastal waters of the Baltic Sea



Monitoring data of the Fisheries Service under the Ministry of Agriculture of the Republic of Lithuania

Role of round goby in the food web of the Baltic Sea coastal ecosystem



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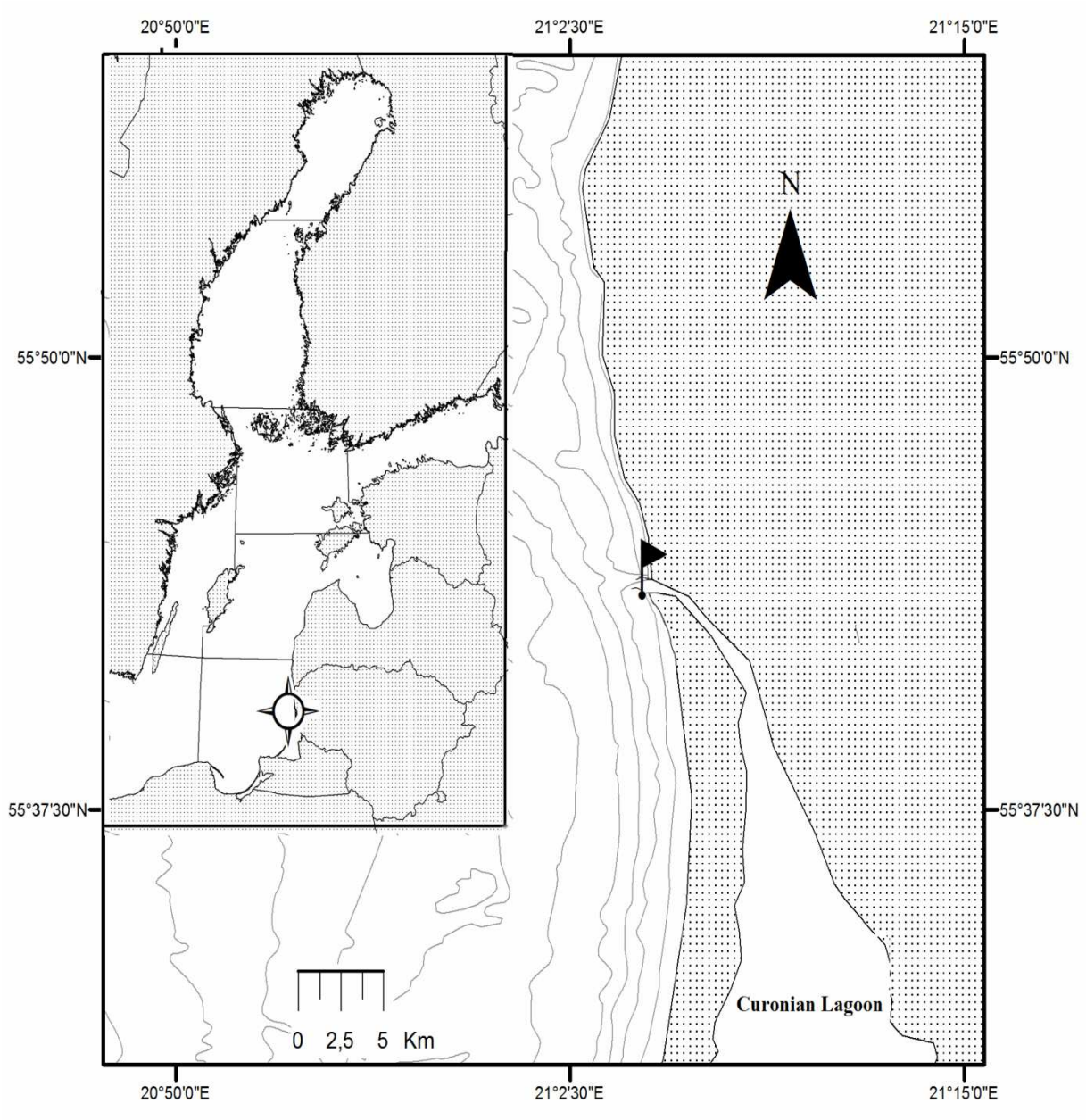
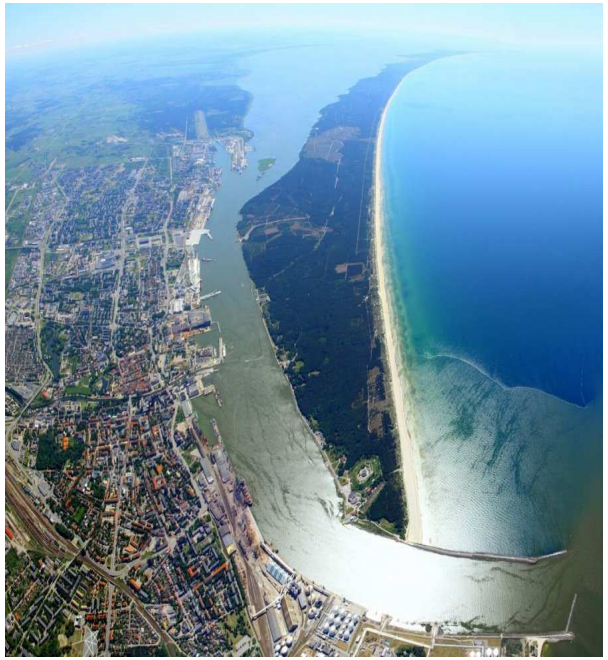
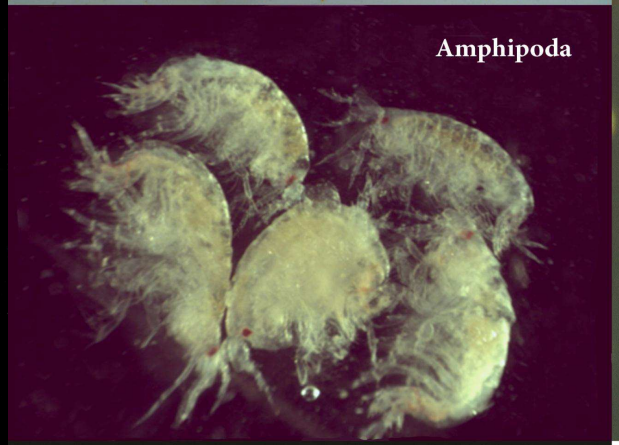
Round goby changes invaded ecosystem by reducing abundances of its feeding objects, competing for food resources with native demersal fish and bird species and becoming an important component in the diet of piscivorous fish, birds and mammals.

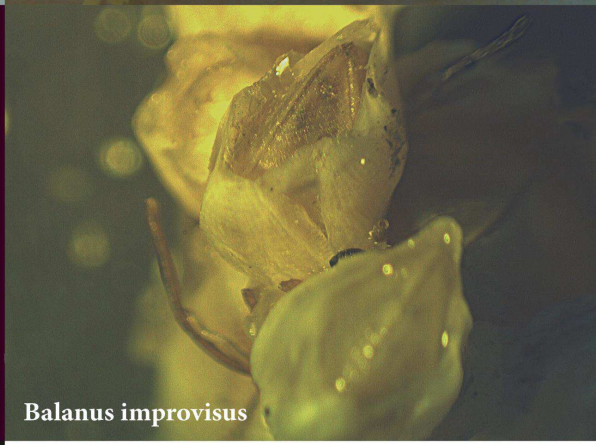
Study site and sampling

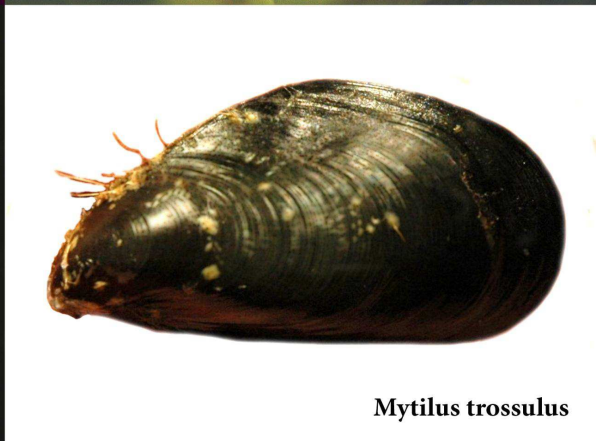




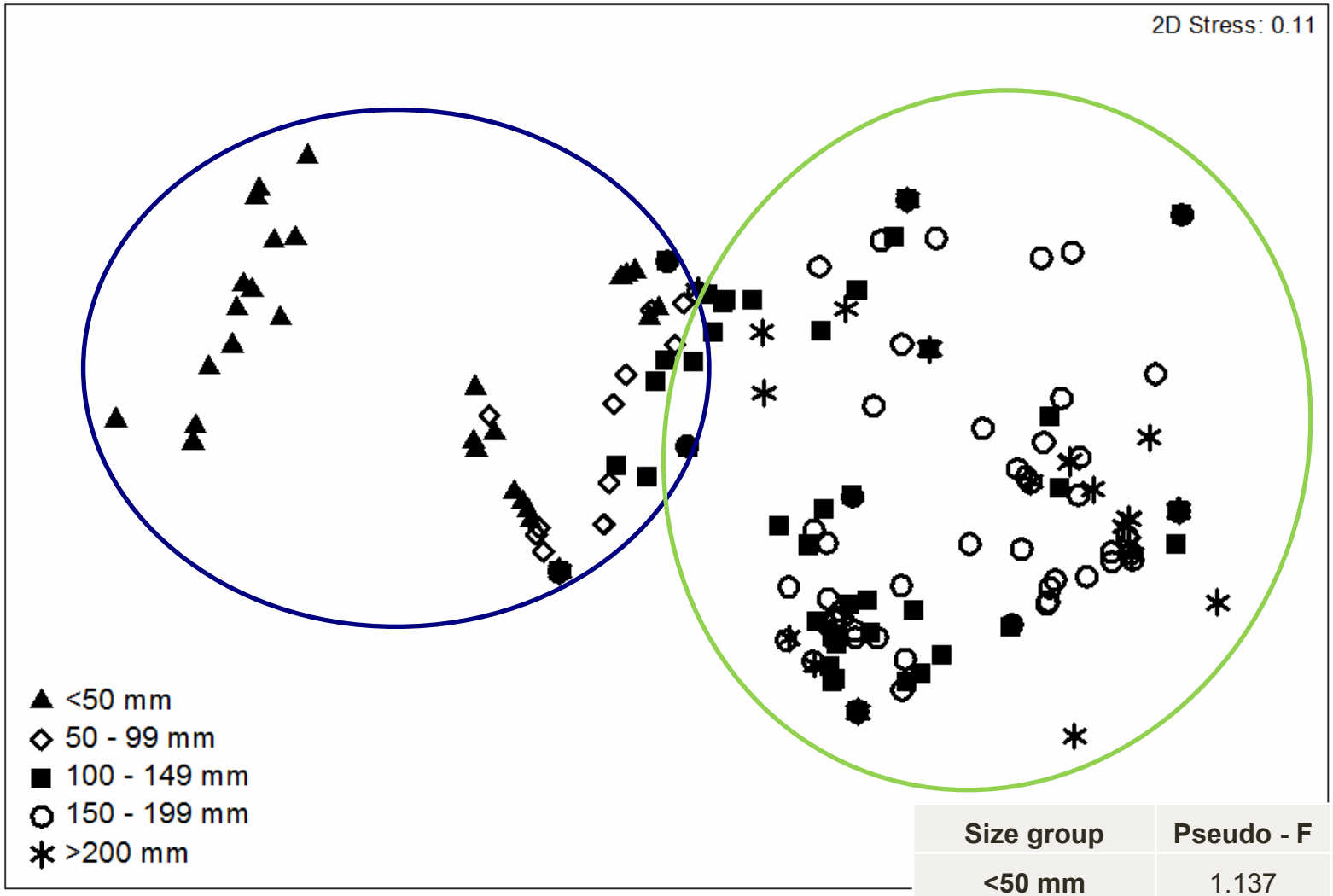
Main prey items of round goby







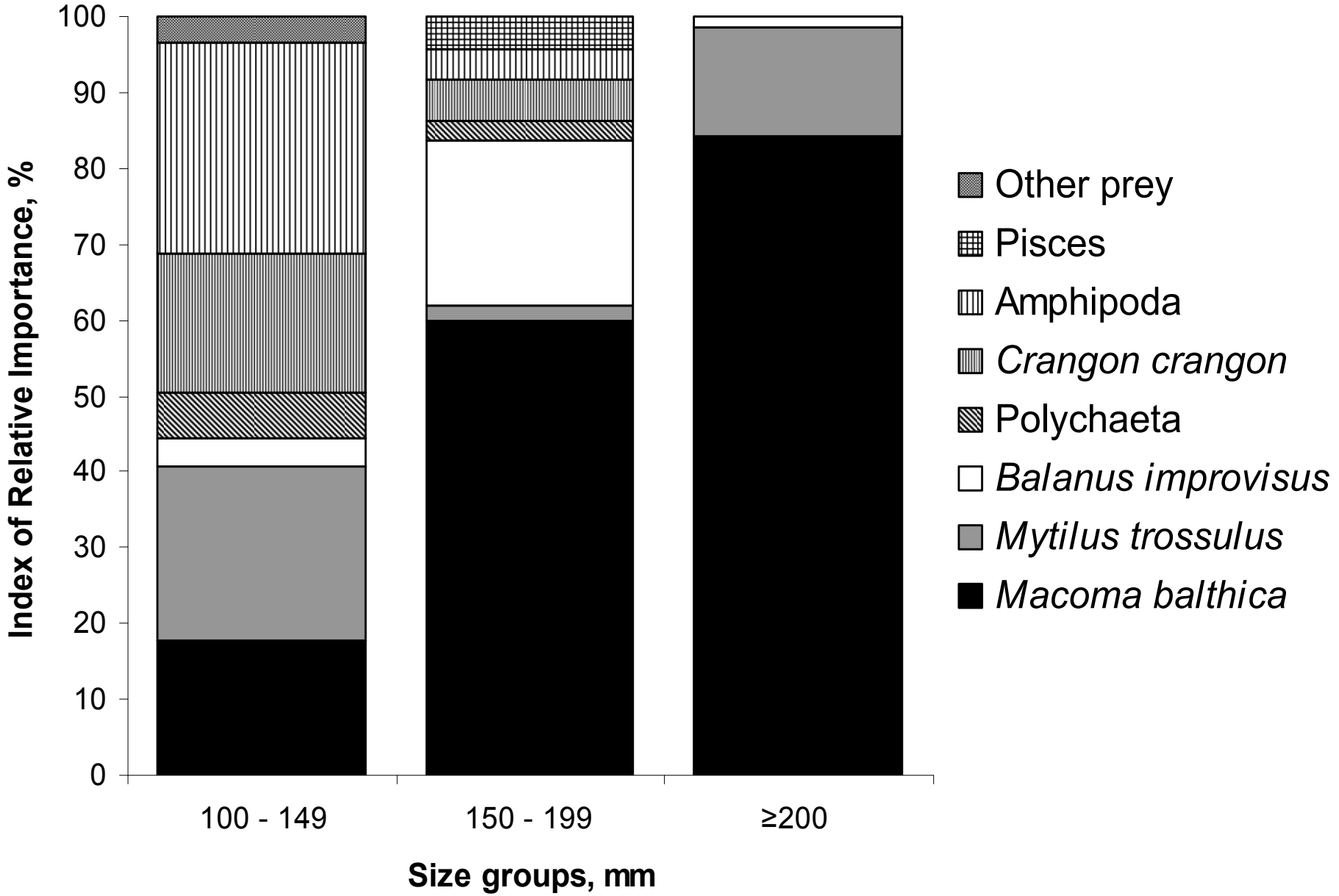
Ontogenetic and seasonal dietary changes of the round goby

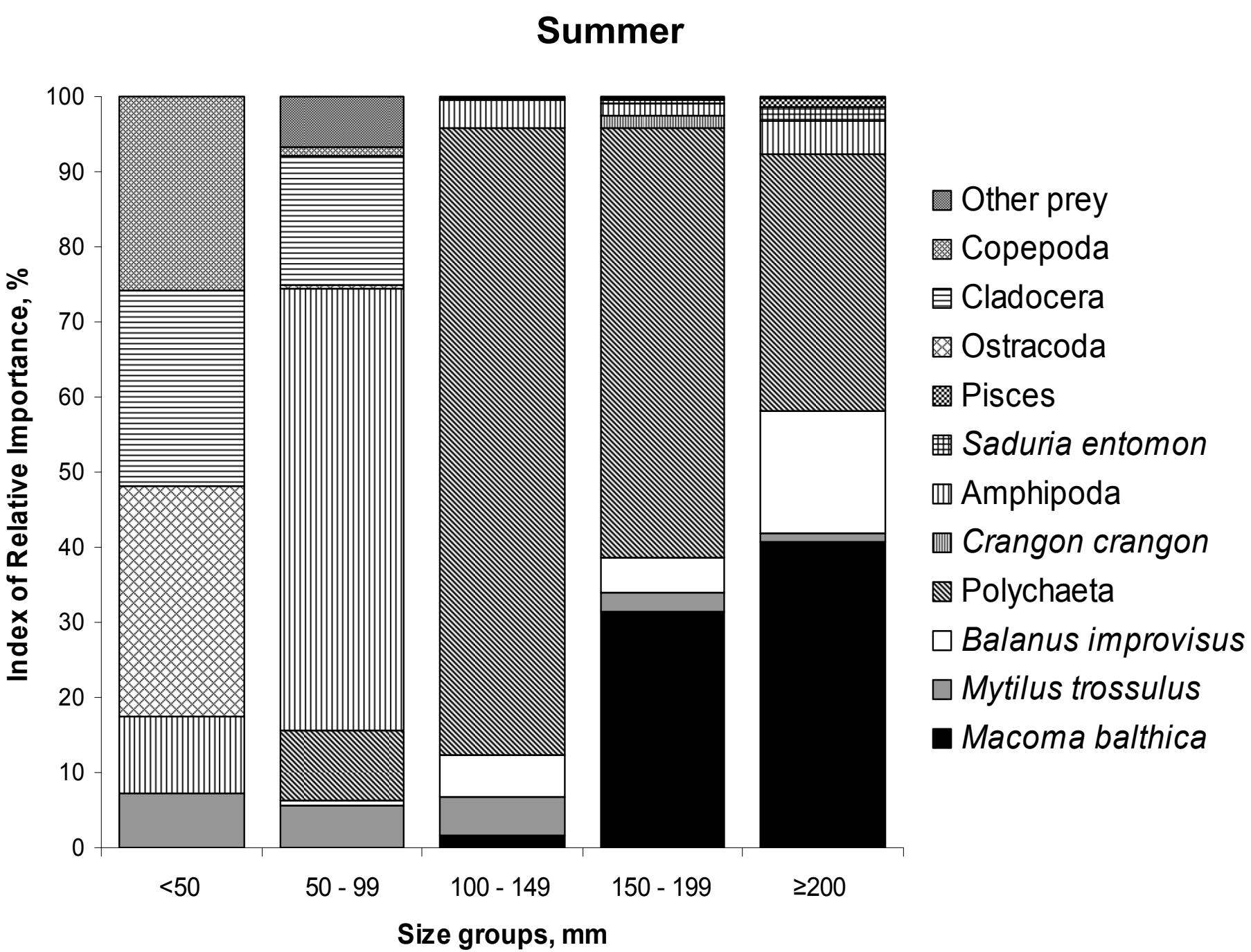


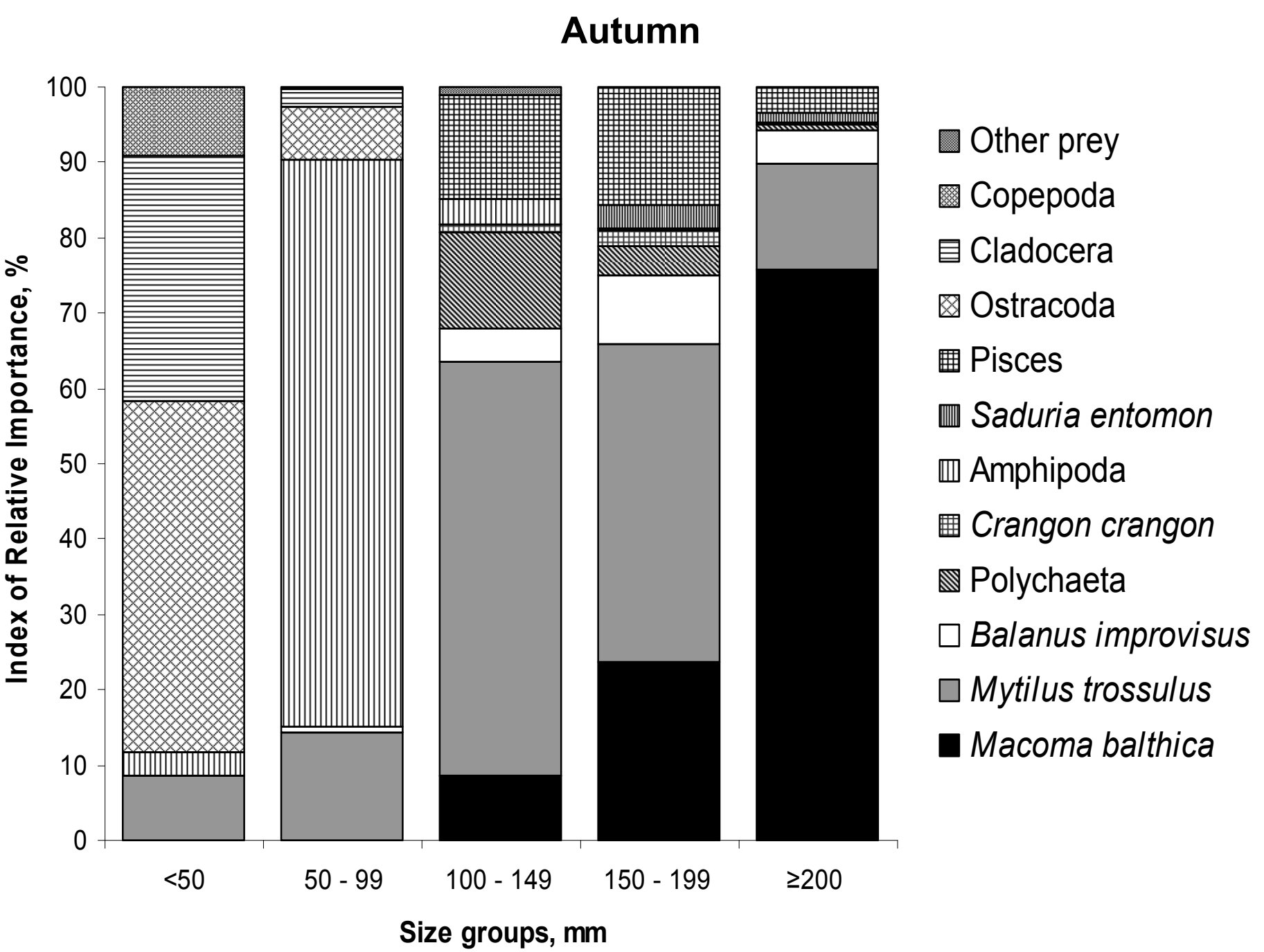
PERMANOVA results of season effect on the diet composition of differently sized individuals.

Size group	Pseudo - F	P
<50 mm	1.137	0.304
50 - 99 mm	1.132	0.270
100-149 mm	2.457	**0.012**
150-199 mm	2.145	**0.047**
≥200 mm	1.691	0.183

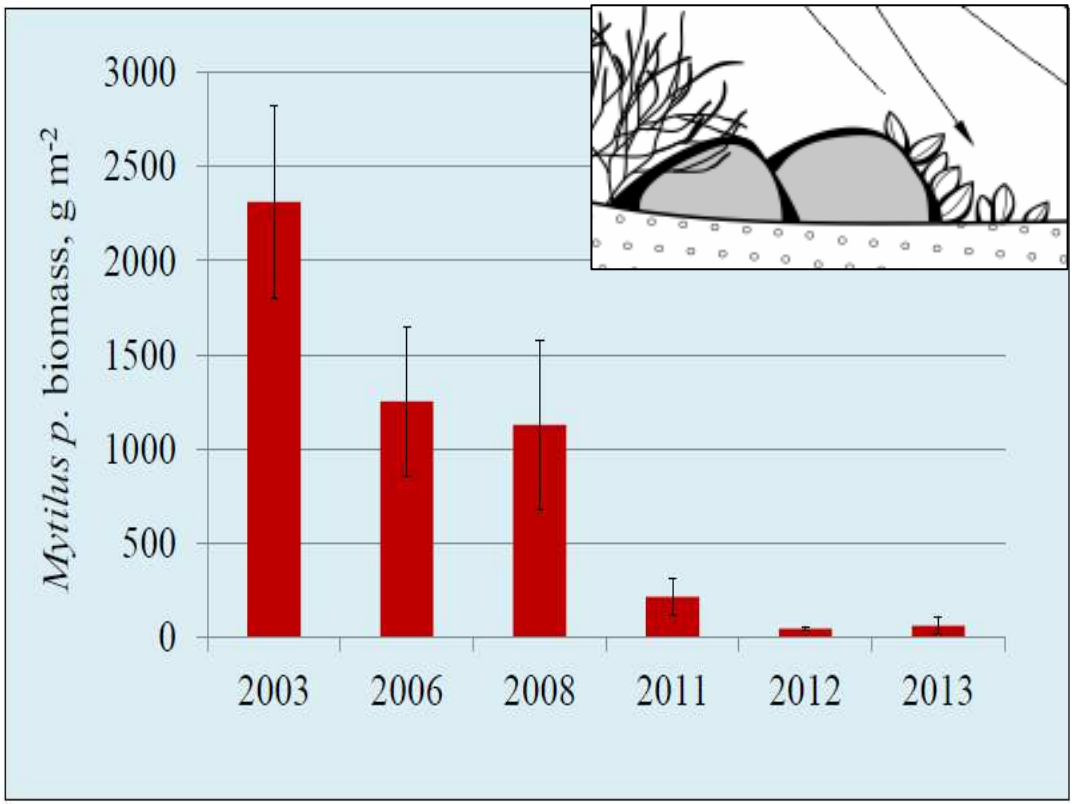
Seasonal dietary changes of the round goby. Spring




Summer
Index of Relative Importance, %
100
90
80
70
60
50
40
30
20
10
0
<50
50 - 99
100 - 149
150 - 199
≥200
Size groups, mm
Other prey
Copepoda
Cladocera
Ostracoda
Pisces
Saduria entomon
Amphipoda
Crangon crangon
Polychaeta
Balanus improvisus
Mytilus trossulus
Macoma balthica


Autumn
Index of Relative Importance, %
100
90
80
70
60
50
40
30
20
10
0
<50
50 - 99
100 - 149
150 - 199
≥200
Size groups, mm
Other prey
Copepoda
Cladocera
Ostracoda
Pisces
Saduria entomon
Amphipoda
Crangon crangon
Polychaeta
Balanus improvisus
Mytilus trossulus
Macoma balthica

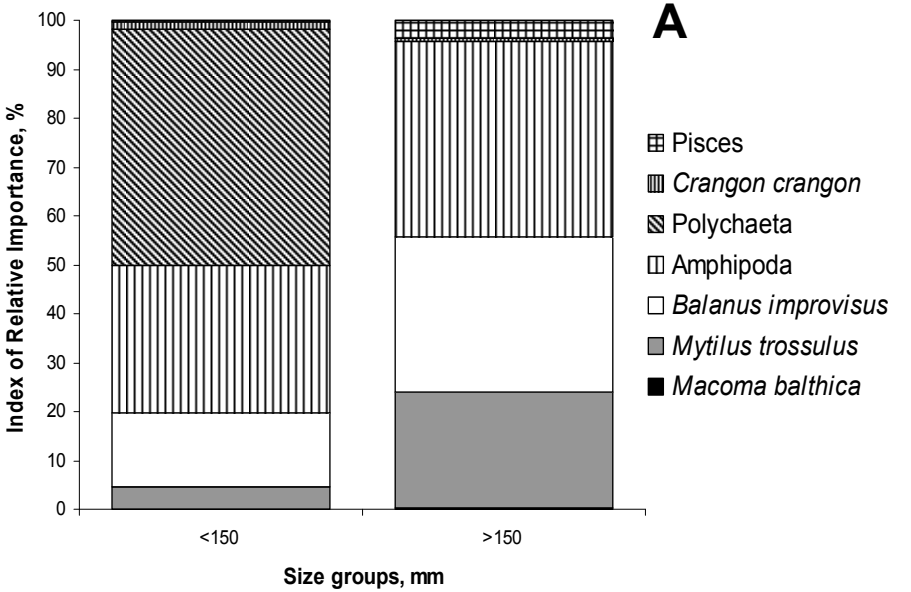
Impact of round goby on epifaunal zoobenthic community



Stupelytė A. 2014. Distribution and biomass dynamics of blue mussel (*Mytilus edulis trossulus*, (Gould, 1850)) in the Lithuanian coastal waters of the Baltic Sea. Bachelor's thesis

Diversity and abundance of epifaunal zoobenthic community before (**A**) and after (**B**) round goby establishment in the Lithuanian Baltic Sea coastal waters.

Diet composition and feeding efficiency of round goby before (A) and after (B) blue mussel settlement on hard substrates



Size group <150 mm

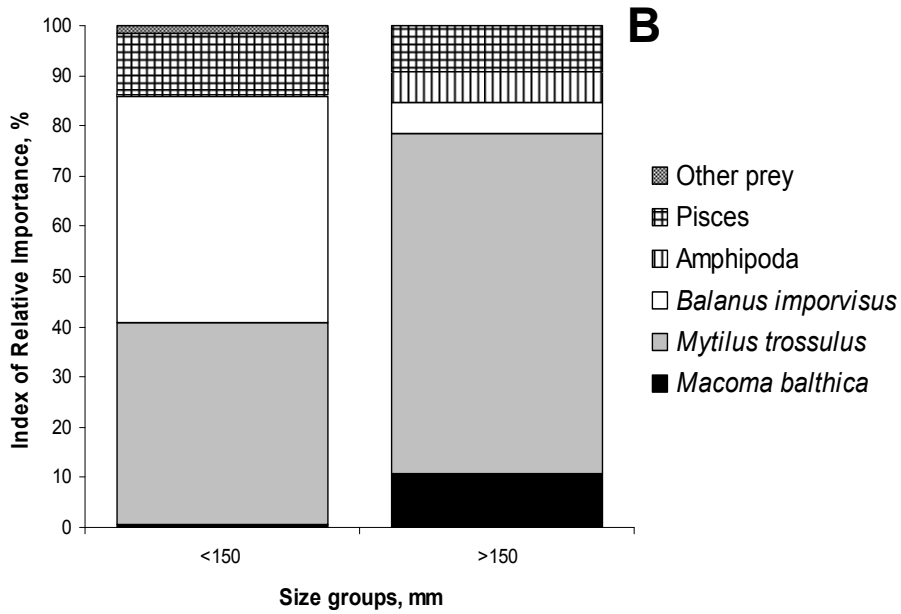
N=186

N_{empty}=64 (34.4%)

Size group >150 mm

N=73

N_{empty}=38 (52.1%)



Size group <150 mm

N=38

N_{empty}=3 (7.9%)

Size group >150 mm

N=18

N_{empty}=2 (11.1%)

Conclusions

- Ontogenetic dietary shift from zooplankton, meiobenthos and amphipods towards mollusks occured at the size of 100 mm;
- Diet composition of round gobies <100 mm and ≥200 mm was relatively constant, while individuals of the intermediate 100-200 mm length had more variable ration, which changed depending on the season;
- Round goby affects recruitment of blue mussel population negatively by consuming large quantities of newly settled small mollusks.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